

Capitol Connection

What exactly is Obama's \$100 million BRAIN Initiative?

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President Barack Obama is introduced by Dr. Francis Collins, Director, National Institutes of Health, at the BRAIN Initiative event in the East Room of the White House, April 2, 2013. (Official White House photo by Chuck Kennedy)

President Obama formally [announced](#) the BRAIN (Brain Research through Advancing Innovative Neurotechnologies) Initiative on April 2. According to the Obama's speech, the BRAIN Initiative will give scientists "the tools they need to get a dynamic picture of the brain in action and better understand how we think and how we learn and how we remember." But what actually is the BRAIN Initiative? And what do people think about it?

The Basics

President Obama has earmarked 100 million dollars for the BRAIN initiative in the 2014 budget that he will send to Congress next week. According to this [White House fact sheet](#), 40 million will come from the National Institutes of Health budget, \$50 million from *Defense Advanced Research Projects Agency (DARPA)*, and \$20 million from the National Science Foundation—so that's actually \$110 million in proposed spending. The initiative is a public-private partnership program, and several private institutions have committed to supporting research related to the initiative with additional funds. These institutions include the Allen Institute for Brain Science (committing \$60 million annually), the Kavli Foundation (committing \$4 million yearly for next 10 years), the Howard Hughes Medical Institute (committing at least \$30 million annually), and the Salk Institute for Biological Studies (committing at least \$28 million). According to the [NIH](#), by "accelerating the development and application of innovative technologies, researchers will be able to produce a revolutionary new dynamic picture of the brain that, for the first time, shows how individual cells and complex neural circuits interact in both time and space."

But what is the initiative? What will the money be used for?

The short answer to these questions is: it hasn't been determined yet. The NIH has identified prominent neuroscientists who will serve on an [Advisory Committee](#) for the Director (Dr. Francis Collins). This committee will solicit input from the broader scientific community and use it to "develop a multi-year scientific plan for

achieving these goals, including timetables, milestones, and cost estimates” that will be presented to the NIH Director in June 2014.

What do neuroscientists think?

I obviously can't speak for all neuroscientists, but I can share some reactions from the researchers I know personally and via Twitter. Some neuroscientists say that any money put into basic neuroscience research is a good thing. Others wonder whether these funds will be diverted from pre-existing sources of money used to fund basic research. Pretty much everyone is wondering—how will this impact the work I do in my lab and my funding situation? I imagine this reaction is especially strong now, since we're in the midst of the sequester, grant paylines are historically low, and labs are actually shutting down due to lack of funding.

Another concern among neuroscientists is how the goals for such an ambitious program will be defined. In the President's speech, he mentioned the Human Genome Project as an example of a large publically funded basic science initiative that revolutionized both basic science and industry (estimates suggest \$140 were returned to the economy for every \$1 spent on this project). But as ambitious as this program was, it had a clear goal: to map all the As, Cs, Ts, and Gs in a human genome (or rather a compilation of multiple humans). As of now, the BRAIN Initiative lacks that clear goal: what does it mean to show “how individual cells and complex neural circuits interact in both time and space” and how do we get there? Does it mean mapping all of the different neuronal cell types in the brain? If so, will they be mapped by their electrical profiles or by their genes or by their locations? Or does it mean mapping how neurons are connected? And if our ultimate goal is to cure neurological and psychiatric disease, does that mean we will focus only on understanding the trillions of connections in a human brain? Or do we start by understanding the 302 neurons of the nematode worm? And what are the existing technologies that need to be advanced to answer these questions?

What about the public?

This morning I listened to the WBUR radio program [On Point](#), which devoted an hour to discussing the BRAIN Initiative. It was interesting to hear what the audience said about the initiative both on the radio and on the program's website and Facebook page. I was encouraged both by the level of enthusiasm some people had for the project (comparing it to the Space Race) and that some realized how little \$100 million is in the context of this undertaking. On the other hand, I cringed a bit when hearing about people with neurological and psychiatric illnesses, as this project is unlikely to unlock any immediate cures (it is likely to be similar to the Human Genome Project in that regard)—although it will get us closer. And I was entertained by the conspiracy theorists who question whether this will give the government the ability to control our brains or create a real-life version of the Matrix.

What about you?

I've discussed just a small cross-section of views on the BRAIN initiative -- what do you think?